The Impact of Government Imposed Market Frictions on U.S. Bank Portfolio Allocations

Noel D. Campbell
University of Central Arkansas

Alex Fayman
University of Central Arkansas

Tammy M. Rogers
University of Central Arkansas

We focus on the relationship between market frictions, as measured by the Economic Freedom Index of North America (EFNA), and bank loan portfolios. Our research indicates that the structure of banks' loan portfolios are impacted by state and federal government policies. Decomposing the EFNA reveals complicated relationships between policy-influenced market frictions and loan markets. Loan portfolios are more sensitive to state-level policies than federal policies. These significant market frictions do not arise from deliberate policy attempts to regulate loan markets, but as the unintended consequence of other government policies.

INTRODUCTION

Several propositions about the U.S. economy have been repeated so frequently as to be considered axioms, or at least pseudo-axioms. The first axiom is that economic growth—and the corresponding income growth—is socially and individually desirable. The second axiom is that entrepreneurship, small businesses, and new business ventures are a significant mainspring of U.S. economic growth. The third axiom is that bank loans are significant sources of capital and working capital for these firms which have limited access to equity and commercial paper markets. The fourth axiom is that the market for bank loans—bank lending behavior and borrowers' loan demand behavior—have been a significant story in the anemic economic recovery experienced by the U.S. economy thus far, following the 2008 crisis.

Taking these axioms to be true, or more true than untrue, at least, it seems prudent and reasonable to investigate the types of impacts market frictions may have on the market for bank loans. (Levine, 1997) Ideally, we would like to ensure that the state government policies—including policies not deliberately aimed at banks or the market for bank loans—are not adding to frictions in the banking system. In this paper, we focus on government policy-derived market frictions; that is, frictions in states' markets for bank loans that arise from a wide range of government activities, rather than government activities specifically geared to affect banks. Specifically, we examine whether market frictions created by state

policies influence (a) types of loans borrowers' request, and (b) types of loans banks fund. In other words, we examine the effect of policy-derived market frictions on the composition of banks' loan portfolios. For example, in response to a particular federal or state policy variable "setting," do the loan portfolios of a state's banks include a greater volume of real estate loans, but a smaller volume of individual loans?
To examine this question, we calculated an aggregate loan portfolio for all FDIC-insured banks in each state, by year. We could then calculate the proportion of a state's aggregate loan portfolio held as particular types of loans. For example, in 1996, commercial & industrial (C&I) loans were 24.1 percent of the value of all loans in Wyoming; or, in 2001, individual loans were 10.7 percent of the value of all loans in Kentucky. We focus on the "big three" components of banks' loan portfolios: real estate loans, individual loans, and C&I loans. Therefore, "other" loans forms the omitted category, and usually consists of agriculture loans, loans to other banks, loans to governments and their entities, foreign loans, and leases. As government policies affect markets, in general, differences in policy-derived market frictions should be evident in the composition of a state's aggregate banking loan portfolios.

It is very important to remember that the percentage of loan portfolios allocated towards a particular loan category is a "reduced form" observation of the interaction of two forces: the demand for credit by borrowers and the supply of credit by banks. Neither banks nor borrowers possess the sole control over the relative weights of various loan categories in bank's loan portfolios.

Our measure of policy-derived market frictions used in this study is the Fraser Institute's Economic Freedom of North America index (EFNA) and the underlying components of the index. In this paper we link the Fraser Institute's EFNA, and its multiple components, to the allocation of banks' loan assets among real estate, consumer and commercial loans. The components of this index such as taxes, government spending, and labor unions are all classic examples of market frictions. This measure of "economic freedom" actually represents a measure of government-policy imposed market frictions. Therefore, a high value for economic freedom (high EFNA index number) means a low level of market frictions. Although this paper presents exploratory research, we expect policy-influenced frictions in financial markets will influence the observed outcome of lending activity by a state's banks, *ceteris paribus*. As policies vary from state to state, so, too, will the frictions in financial markets. These frictions will have multiple, but significant, effects on the outcome of the state's market for bank loans.

LITERATURE REVIEW: ECONOMIC FREEDOM AND BANK LENDING PATTERNS

Milton Friedman (1962) conceptually related economic freedom and wealth. Freedom indices of the world have established themselves as fixtures in the social sciences literature, especially in the economic growth literature. (Atukeren, 2005; Berggren and Jordahl, 2005; Gwartney, Lawson and Clark, 2005; Powell, 2005; Gwartney, Holcombe and Lawson, 2004; Nieswiadomy and Strazichich, 2004; Cole, 2003; Gwartney and Lawson, 2003; Gwartney, Block and Lawson, 1996) Across the literature, the consistent finding is that economic freedom, as measured by the various indices, is significantly and positively related to economic well-being. Citizens of nations with more economic freedom enjoy higher incomes, and as an economy becomes freer, incomes rise.

The Karabegovic, Samida, Schlegel and McMahon (2003) study, "Economic Freedom of North America," presents a conceptually similar index (the EFNA) featuring economic freedom differences among U.S. states and Canadian provinces. Karabegovic, et al, use their index to explain income differences among the states, offering evidence that the freedom index is significantly, positively related to state levels and growth of economic activity.

Karabegovic, et al., choose to group ten variables into three categories: size of government; takings and discriminatory taxation; and labor market freedom. For *size of government*, the authors measured general consumption expenditures by government as a percentage of state GDP, transfers and subsidies as a percentage of state GDP, and Social Security expenditures as a percentage of state GDP. For *takings and discriminatory taxation*, the authors measured total government revenue from own source as a percentage of state GDP; top marginal income tax rate and the income threshold at which it applies; indirect tax revenue as a percentage of state GDP; and sales taxes collected as a percentage of state GDP.

They rate top personal income tax rates by the income thresholds at which they apply, where higher thresholds result in a better score. For *labor market freedom*, the authors measure minimum wage legislation, government employment as a percentage of total state employment, and union density. Please see Karabegovic, McMahon, and Mitchell, (2005) for a discussion of why these variables were included and others excluded. Karabegovic, et al., construct a scale from zero to 10 to represent the underlying distribution of the 10 variables in the index, with higher values indicating higher levels of "economic freedom." Thus, the freedom index is a relative ranking of economic freedom across jurisdictions and across time. In the final construction each area was equally weighted and each variable within each area was equally weighted.

An alternative view of the EFNA is that it actually measures government-policy imposed market frictions. Taxes, transfer payments, and labor market laws are all well documented examples of market frictions. The EFNA is actually measuring the level of market frictions within a state or province. Based upon the construction of the index, a low level of market friction would result in a high level of economic freedom.

Researchers repeatedly demonstrated that economic freedom is a significant determinant of economic growth and development (Karabegovic, et al. (2003) and Karabegovic, et al. (2005)). Researchers have since related the EFNA to a wide variety of economic phenomena beyond income growth. For example, Campbell, Heriot, and Jauregui (2008) linked economic freedom to increases in housing values. Bezmen and Depken (2006) relate economic freedom to lower criminal activity within states. Ashby and Sobel (2008) showed a relationship between economic freedom and the reduction in income inequality within states, and Ashby (2007) finds that states with greater economic freedom find it easier to attract new residents. A growing literature ties economic freedom to entrepreneurship and business venturing (Sobel (2008), Grohmann, et al. (2008) Hall and Sobel (2008); Campbell, Heriot, and Rogers (2007-2008); Kreft and Sobel (2005); Campbell and Rogers (2007); Sobel, Clark and Lee (2007)). Stocker (2005) and Lawson and Roychoudhury (2008) related economic freedom to equity portfolio returns.

Bank lending patterns have not escaped the eye of researchers. Berger, et al. (1997) and Keeton (1996) found that the degree of merger and acquisition activity is related to small business lending by banks; smaller banks tend to lend to smaller businesses. The authors speculated that banking M&A activity would lead to an eventual contraction of credit availability for small businesses. Similarly, Strahan and Weston (1996) and Peek and Rosengren (1998) also examined bank lending to small businesses in light of bank mergers and concluded that any reduction in the small business loan portfolios of large banks would be offset by increased small business lending by small banks. They showed that most of the commercial lending done by smaller banks is to smaller businesses, and argued that even though bank consolidation is decreasing the number of the small banks, small business lending should not see a contraction due to bank M&A activity. Haubrich and Wachtel (1993) and Beatty and Gron (2001) related bank portfolios to capital requirements by regulators. In 1989 there was a shift in the way banks allocated their portfolios, as a common set of risk-based capital standards was established. This, according to the authors, lowered the overall risk appetite of lending institutions, and that changes in behavior were mostly exhibited by institutions with lower capital ratios.

Demsetz and Strahan (1997) examined lending by larger bank holding companies to see whether diversification of business activities led to an overall risk reduction for the depository institutions. They found that any risk reduction achieved through diversification is offset by a greater focus on commercial lending. These results demonstrated a conscious effort on behalf of banks to control loan portfolio allocation. Diversification across lending categories, as well as geographical diversification, was analyzed by Hayden, Porath and Westernhagen (2007) for a group of German banks. For banks, as for industrial firms, diversification leads to a decrease in profitability.

More recent literature has looked at the impact of the recent economic crises on bank lending. Ivashina and Scharfstein (2008) find a 47 percent contraction in new lending to large borrowers in 2008. This, however, was offset by a spike in commercial loan portfolios for banks immediately after the crises, as borrowers rushed to exercise any remaining portions of their credit lines in the anticipation of the contraction in available credit.

Finally, Sapienza (2002) and Micco and Panizza (2006) look at the effects of state ownership on bank lending in Italy and Chile. Researchers demonstrated a significant impact of state ownership on banking institutions. This supports the hypothesis that government interference into banking leads to augmentation of bank operating activities. These papers find that state ownership cushions banks against economic cycles, compared to privately owned institutions, as governments are more likely to provide more credit, at lower rates, to borrowers independent of economic cycles. Researchers also found that state owned institutions are more likely to lend to larger businesses, and that their lending is impacted by political cycles.

DATA & METHODOLOGY

The data was collected from the FDIC Historical Statistics on Banking Report, the U.S. Census, the U.S. Bureau of Labor Statistics, and the Fraser Institute, for all fifty states, for the period 1981-2005. The variables are presented in Table 1.

TABLE 1
KEY TO VARIABLES

Effedonly	Authors' re-calculated version of the EFNA that includes only the Federal government
Effrtio	Banks' efficiency ratio
EFNA	Economic Freedom of North America index
Efnofed	EFNA for state & local government only
Fedonly1	Area 1 sub-index for authors' EFNA-Federal government only
Fedonly2	Area 2 sub-index for authors' EFNA-Federal government only
Fedonly3	Area 3 sub-index for authors' EFNA-Federal government only
GDPpcEFNA	GDP by state, orthogonalized on EFNA
Instinop	Number of bank institutions in operation, by state
Minpct	Non-Caucasian percentage of the state's population
Nofeda1	Area 1 sub-index for EFNA-state & local governments only
Nofeda2	Area 2 sub-index for EFNA-state & local governments only
Nofeda3	Area 3 sub-index for EFNA-state & local governments only
Popden	Population density
Post94	Cumulative dummy variable; (1) after 1994
ROE	State banks' return on equity
Unmplymnt	State unemployment rate
RELnsPct	Real estate loans as a percent of all loans
IndLnsPct	Individual loans as a percent of all loans
CnILnsPct	C&I loans as a percent of all loans

We estimate two-way fixed effects models, with the state as the cross-sectional unit of observation. We estimate a series of models using three different dependent variables. The dependent variables are designed to capture the variation in the composition of a state's aggregate banking loan portfolio. We

calculate the dollar amount of real estate loans as a percent of a state's aggregate loan portfolio; individual loans as a percent of a state's aggregate loan portfolio; and commercial and industrial loans as a percentage of a state's aggregate loan portfolio. We constructed these variables using data from all FDIC-insured banks within a state.

In this study, we look at two types of independent variables: "environmental variables" and "institutional variables" as they relate to the proportion of loan portfolio that banks allocate to real estate, consumer and commercial loans. Also included in the models are various versions of the EFNA that measure government interference by looking at government size, taxation and labor freedom.

The environmental variables are related to the governmental institutions and economic conditions in which banks operate, while the institutional variables relate to the operation of banks and the banking system. The environmental independent variables consist of state GDP per capita, the non-Caucasian percentage of a state's population, the state's population density, the state's unemployment rate, a cumulative dummy (post 1994 = 1) indicating the passage and implementation of the Interstate Branching and Banking Efficiency Act, as well as year and state fixed effects. The best established result in the literature using the EFNA and the similar economic freedom of the world indices is that higher values of these indices (more "freedom," or fewer market frictions) is related to higher incomes, or faster growing incomes (Karabegovic, et al. (2003) and Karabegovic, et al. (2005)). Estimating a model with both GDP and EFNA as independent variables introduces multicolinearity. To avoid this issue, we first orthogonalize GDP on the appropriate version of subset of the EFNA.

The institutional variables consist of state's bank aggregate return on equity (ROE), efficiency ratio, and the number of banking institutions in operation. The state aggregate bank numbers are constructed from the branch level based on the branch address; so a bank could be incorporated in Georgia but have branches in Alabama. The branches with physical locations in Georgia will be counted in the Georgia aggregate, but the branches with physical locations in Alabama will be counted in the Alabama aggregate. Therefore, the bank measures are indicative of banking activity within the state borders. The aggregate ROE gives a measure of the health and profitability of the banking industry within the state. It is measured as total net income of all bank operations within a state, divided by total equity of banking operations within the state. The efficiency ratio is a commonly used measure of a bank's ability to control its operating costs. It is calculated by dividing noninterest expense by net interest income plus noninterest income. A lower ratio represents a bank that is better able to control its operating expenses. In the aggregate sense, it gives an indication of how efficient a state's banks are at controlling their operating expenses. In states with more banking competition, one would expect that the banks would have to be more efficient at controlling expenses in order to stay competitive and offer sufficient returns to investors. Furthermore, states in which banks achieve more economies of scale and scope will tend to have lower efficiency ratios.

Banking institutions within the state is the number of different banking firms with operations within a state's borders. This variable is a crude measure of the competition within the banking market in the state. Banks in more competitive markets may choose to specialize in loans where they have significant profit potential or economies of scale. Alternatively, increased competition may lead to credit rationing as banks choose to lend to only high quality, low risk applicants.

At the loan portfolio level, consumer and commercial and industrial loans usually have higher margins, which make them more profitable. However, commercial and industrial loans are more expensive for banks to make. They require extensive, individualized analysis by an experienced credit analyst. (Mester 1997) Similarly, real estate loans have high origination costs and can add substantially to a bank's interest rate risk. Consumer loans, however, are quick and easy to make with relatively low up-front cost. A consumer loan is usually given based on a credit scoring model that takes very little time to apply. Banks expect to have slightly higher losses on these loans, which will increase collection costs, but they are small enough in individual size so that in the aggregate the losses are more than offset by the higher profitability.

We hypothesize that policy-influenced frictions in financial markets will influence the observed outcome of lending activity by a state's banks. As policies vary from state to state, so too, will the

frictions in financial markets. These frictions will have multiple, but significant, effects on the outcome of the state's market for bank loans.

EMPIRICAL RESULTS

Table 2 presents results of three models where the dependent variables are the three types of loan categories investigated in this paper. From Table 2, EFNA is insignificant in all three models in relation to composition of loan portfolios, however, per capita income, orthogonalized on EFNA (GDPPCEFNA), is strongly, directly related to the percentage of real estate loans as a percent of total loans. Thus, banks in states with richer residents produce and hold more mortgages on their balance sheets to finance the purchase of expensive homes in an economically progressive environment. Additionally, these are typically lower-risk borrowers of an asset that banks can easily securitize (at least, over our sample period). Therefore, these loans are very attractive to the depository institutions. The lack of income's significance in individual (consumer) loans is not surprising because of the bi-directionality of the income effect. On one hand, richer people want more big ticket items and thus exhibit greater demand for individual loans; on the other hand, richer people have less need to finance their daily lives with credit cards. One unexpected result is the negative and weakly significant relationship between proportion of bank portfolios devoted to commercial loans and per capita income. This may be due to the fact that commercial loans have seen much competition from commercial paper markets. Additionally, firms in these wealthier states may be larger, on average, and have access to the capital markets, greater sources of stored capital, or the ability to self-finance through their annual cash flow, thereby reducing their reliance on banks for credit.

Further, from Table 2, population density is negatively and strongly related to proportion of real estate loans in bank portfolios. This suggests that in older, more urbanized states with more mature real estate markets, real estate loans are larger in size and present greater risk to bank portfolios. Thus, it is beneficial for banks to securitize and sell these loans as they present added default, interest rate, and prepayment risks. On the contrary, population density is positively and strongly significantly related to the proportion of individual loans in bank portfolios. It is well documented that life in higher populated cities tends to be more expensive and individuals are more likely to finance their more expensive lifestyles by utilizing credit card debt. Moreover, population density is negatively and strongly related to the proportion of commercial loans on banks' books. Once again, the results suggest that in large cities banks hold fewer commercial loans in their portfolios. As stated above, if the more densely populated states are the wealthier ones as well, with greater proportion of larger firms, then the explanation offered above for the relationship between GDP and commercial loans, is applicable in this case as well.

Furthermore, from Table 2, the percentage of minority population is an insignificant determinant of the proportion of both real estate and individual loans in banks' portfolios, but is significantly negatively related to the percentage of commercial loans. This result may be further support of Mitchell and Pearce's (2011) recent findings of unequal minority access to bank non-line-of-credit loans, regardless of loan market competitiveness. Although, they do find evidence to support minority equal access in line of credit loans in competitive markets. The state unemployment rate is positively related to individual loan percentage and negatively, but weakly significantly, related to the proportion of commercial loans, as one would expect. It seems that the unemployed live off of their credit cards, and businesses in the area do not wish to stock up on inventory or purchase new capital. Finally, the reduction in barriers to interstate branch banking in 1994 appears to have had little effect on individual loans, but banks increased their percentages of real estate loans and reduced their percentages of commercial loans. It is possible that the significance of this variable, at least in part, is driven by the housing bubble of the early 2000s as banks shifted lending focus into profitable and easily securitized mortgages.

TABLE 2
PERCENT OF LOAN PORTFOLIOS BY LOAN TYPE AND EFNA

	relnspct		indlnspct		cnilnspct	
EFNA	14.7725		-5.7900		0.3380	
	1.60		*-0.63*		*0.07*	
GDPPCEFNA	9.5086	***	-5.1855		-3.1927	*
	2.87		*-1.57*		*-1.89*	
Popden	-20.9109	***	26.6146	***	-12.3661	***
	-5.56		*7.10*		*-6.46*	
Minpct	-0.0815		0.0044		0.1380	***
	-1.18		*0.06*		*3.92*	
Unmplymnt	-0.1687		0.4461	**	-0.1935	*
	-0.81		*2.14*		*-1.82*	
Roe	-30.9468	***	37.8079	***	-4.4205	**
	-8.38		*10.26*		*-2.35*	
Effrtio	-9.9318		4.8877		-6.6710	**
	-1.60		*0.79*		*-2.11*	
Instinop	-0.0089	***	0.0062	**	-0.0007	
	-3.01		*2.11*		*-0.49*	
post94	11.0836	***	-1.3439		-4.9589	***
	4.26		*-0.52*		*-3.75*	
Cons	74.2372	**	-76.7702	**	81.5069	***
	1.92		*-1.99*		*4.14*	
R-sq: within	0.6717		0.2733		0.6344	
F(32,1168)	74.67		13.73		63.34	
Prob > F	0		0		0	

In Table 2 and all of the specifications that follow, ROE is always negatively related to real estate and commercial and industrial loans while positively related to consumer loans. This result is not too surprising given that consumer loans have both the highest margins and relatively low costs. They tend to have fairly high returns compared to real estate and commercial loans, e.g., everyone expects to pay a higher rate on their credit card than their home loan. Real estate and C&I loans are more costly for banks to make and carry significantly more risk. Business loans may have higher returns, but they are much more difficult to analyze and they cost more to process. Mortgages, while secured, have very high origination costs for the lender due to compliance issues and have rather low rates of return over our sample period. Banks with a healthy ROE may choose to forego the return of real estate and C&I loans, but also forego the risk.

In Table 2, and for all but one other specification, the efficiency ratio coefficient is insignificant for real estate and consumer loans, but negative and significant for C&I loans. As previously discussed, the cost of analyzing a commercial loan is significantly higher than for other types of loans. Only banks with low efficiency ratios are going to be able to take advantage of this potentially lucrative market. If the bank

can gain some economies of scale in their cost structure, they may be able to justify generating a larger volume of these potentially very profitable loans.

In Table 2 and in other specifications, the number of institutions in a state has a negative and significant effect on real estate loans, a positive and significant effect on individual loans, and no significant effect on C&I loans. That is, when more institutions operate within a state, banks' portfolios shift from real estate loans to consumer loans. We hypothesize that as a more competitive landscape develops, banks will securitize their real estate loans and move into more lucrative and lower cost consumer loans to stay competitive.

TABLE 3
PERCENT OF LOAN PORTFOLIOS BY LOAN TYPE AND "STATE & LOCAL" EFNA VS. "FEDERAL ONLY" EFNA

	relnspct		**indlnspct**		**cnilnspct**	
Effedonly	-0.3852		0.4017		0.0138	
	-0.74		*0.77*		*0.05*	
Efnofed	-46.1903	***	39.2001	***	5.3013	
	-6.77		*5.74*		*1.50*	
GDPPCDECEF	16.6262	***	-12.0552	***	-1.8562	
	5.32		*-3.85*		*-1.14*	
Popden	-22.2023	***	27.2435	***	-10.9084	***
	-6.31		*7.74*		*-5.98*	
Minpct	-0.0483		-0.0300		0.1480	***
	-0.71		*-0.44*		*4.22*	
Unmplymnt	-0.4276	**	0.6812	***	-0.1994	*
	-2.05		*3.26*		*-1.84*	
Roe	-28.6958	***	35.8807	***	-4.7646	***
	-7.86		*9.82*		*-2.52*	
Effrtio	-8.6599		3.8896		-7.2315	**
	-1.42		*0.64*		*-2.28*	
Instinop	-0.0096	***	0.0068	**	-0.0007	
	-3.30		*2.35*		*-0.49*	
post94	3.4904		4.2351		-3.9032	**
	1.04		*1.27*		*-2.25*	
Cons	347.1878	***	-278.7614	***	53.7134	***
	10.21		*-8.19*		*3.04*	
R-sq: within	0.6825		0.2916		0.6329	
F(33,1167)	76		14.56		60.98	
Prob > F	0		0		0	

The banking industry in the U.S. is known for its duality, meaning that is there is a historical coexistence of nationally-chartered and state-chartered banks. Additionally banks are regulated at state and federal levels. A state chartered bank will still have federal regulatory requirements in addition to

state requirements as will their customers. These two levels of regulation and market frictions may work in opposite directions. Conveniently, the authors of the EFNA calculate an "all governments" index and a "state & local" index. We use their data and methodology to calculate a "federal government only" index. Table 3 indicates that there are strikingly different effects of "market frictions" depending on what level of government imposes those frictions on the states' markets for bank loans. This is an interesting result because in Table 2, EFNA is not found to be significantly related to banks' portfolio composition. By breaking EFNA up into state and federal indices, we gain some interesting insight into what types of regulations, state or federal, impact portfolio composition. From Table 3, it is apparent that the federal impact is insignificant, while frictions arising at the local and state levels have a significant impact on the composition of banks' loan portfolios. Lower levels of market frictions (higher levels of economic freedom), at the state level, are negatively related to the proportion of real estate loans and positively related to the proportion of individual loans on bank balance sheets. We further decompose the EFNA into its area sub-indices in order to further explore the differential impacts of federal, state, and local policies on banks' loan portfolios.

To further analyze which components of the EFNA drive the effect on bank loan portfolios, we look at three factors which may create frictions in the business community and consequently impact bank loan portfolios. In Table 4, the variable *nofeda1,* is the Area 1, "size of government" sub-index of the EFNA, at the state level only. It looks at the size of government at the state level as it impacts the proportion of real estate, individual and commercial loans. Similarly, the variable *fedonly1* was calculated based on the EFNA Area 1 "state and local governments only" and "all governments" indices. It accounts for the size of the government on the federal level. Variables *nofeda2* and *fedonly2*, constructed analogously to *fedonly1* and *nofed1* from the EFNA's Area 2 sub-index, measure the relationship between levels of state and federal taxation and bank loan portfolio structure respectively, while Variables *nofeda3* and *fedonly3,* constructed analogously to *fedonly1* and *nofed1* from the EFNA's Area 3 sub-index, represent measures of labor freedom. They measure percentage of employment accounted for by governments, union density within a state, and aspects of minimum wage legislation.

Table 5 summarizes the EFNA evidence from Table 4. Smaller state- only *size of government* increases the proportion of all three of our measured loan types, relative to the omitted category of "other" loans. Smaller Federal-only *size of government* increases the percentage of real estate loans in banks' portfolios, and decreases the percentage of individual loans and C&I in banks' portfolios. That is, as the Federal government's general consumption expenditures, transfers and subsidies, and Social Security expenditures *decrease*, then banks hold a greater percentage of real estate loans, and a smaller percentage of C&I loans in their portfolios. We hypothesize that a smaller government—by consumption expenditures and income transfers—motivates banks and borrowers to pursue higher returns by accepting more risk; shifting out of "omitted" loans and into relatively profitable real estate, individual, and C&I loans. The Federal results may be selecting states with younger populations and more energetically developing economies. Over our sample period, real estate loans were very profitable. Less social security spending (the main difference between Fed-only and state-only Area 1 EFNA) would indicate younger population, so those states would have fewer older people who have paid off their mortgages or are renting. This would suggest a greater demand for real estate loans.

TABLE 4
PERCENT OF LOAN PORTFOLIOS BY LOAN TYPE AND EFNA AREA SUB-INDICES

	relnspct		**indlnspct**		**cnilnspct**	
nofeda1	-5.2929	***	4.0769	***	1.5759	***
	-7.12		*5.48*		*4.11*	
nofeda2	-0.2518		1.7305	***	-0.5574	*
	-0.40		*2.78*		*-1.74*	
nofeda3	-3.0360	***	0.3583		-0.3958	
	-3.30		*0.39*		*-0.83*	
fedonly1	2.3690	***	-1.9231	**	-0.7731	*
	2.57		*-2.09*		*-1.63*	
fedonly2	-0.5323		2.4706	***	-0.9533	**
	-0.64		*2.95*		*-2.21*	
fedonly3	2.8378	**	-4.4678	***	3.5661	***
	2.38		*-3.75*		*5.80*	
GDPPCDECEF	7.5084	*	-4.5187		-2.4088	
	1.79		*-1.08*		*-1.11*	
Popden	-24.3563	***	26.3950	***	-10.7641	***
	-6.20		*6.73*		*-5.32*	
Minpct	0.0020		-0.0887		0.1216	***
	0.03		*-1.27*		*3.38*	
Unmplymnt	-0.5504	**	0.6578	***	0.0460	
	-2.41		*2.88*		*0.39*	
Roe	-27.9145	***	36.4990	***	-5.7620	***
	-7.36		*9.63*		*-2.95*	
Effrtio	-6.1608		-1.4339		-5.0973	
	-0.98		*-0.23*		*-1.57*	
Instinop	-0.0112	***	0.0090	***	0.0000	
	-3.67		*2.93*		*-0.02*	
post94	16.9216	***	0.7280		-12.0829	***
	3.05		*0.13*		*-4.22*	
Cons	184.7983	***	-117.3949	***	57.4441	***
	10.14		*-6.45*		*6.12*	
R-sq: within	0.6878		0.3151		0.6502	
F(37,1115)	66.38		13.86		56.01	
Prob > F	0		0		0	

TABLE 5
PERCENT BY LOAN TYPE AND EFNA SUMMARY

	relnspct		indlnspct		cnilnspct	
State only 1	+	***	+	***	+	***
Fed only 1	+	***	-	**	-	*
State only 2			+	***	-	*
Fed only 2			+	***	-	**
State only 3	-	***				
Fed only 3	+	**	-	***	+	***

Smaller state- and Federal-only *takings and discriminatory taxes* increase the percentage of individual loans in banks' portfolios, and decrease percentage of C&I loans in banks' portfolios. That is, as any level of government's total revenue; top marginal income tax rate and the income threshold at which it applies, and indirect tax revenue and sales tax revenue also *decrease*, then banks hold a greater percentage of individual loans, and a smaller percentage of C&I loans in their portfolios. Using either index level, a smaller tax burden indicates a shift from C&I loans into individual loans, with real estate loans not significantly affected. Smaller tax burden would indicate that businesses retain more revenue and would be better able to finance operations out of pocket; hence, they have less desire to take out C&I loans. By the same token, households are relatively wealthier, and will consume more normal products. They may turn to banks to finance an increasing part of their present-period consumption.

Smaller state-only *labor market freedom* decreases the percentage of real estate loans in banks' portfolios. Smaller Federal *labor market freedom* increases the percentage of real estate loans and C&I loans in banks' portfolios, but decreases the percentage of individual loans in banks' portfolios. That is, as state-level minimum wage legislation, government employment, and union density *decrease*, then banks hold a smaller percentage of real estate loans in their portfolios. As Federal minimum wage legislation, government employment, and union density *decrease*, then banks hold a larger percentage of real estate and C&I loans, but a smaller percentage of individual loans, in their portfolios. The state level results may be capturing agricultural states, where farm and ranch loans effectively substitute for real estate loans. For the Federal effects, where the Federal minimum wage is the binding constraint, there may be more business activity by smaller firms, because in those states it is easier to hire, expand, etc., for small firms which lack access to the commercial paper market. Also, these conditions seem to describe the Sun Belt and western states; states that have undergone significant development much more recently. As such, there is likely to be more home construction and more commercial construction activity in those states in our sample period; hence more real estate loans.

There are some additional results from Table 4 that are to be noted. As expected, the unemployment rate is negatively related to the percentage of loan portfolios devoted to real estate and positively related to the percentage of loan portfolios related to consumer loans. The unemployed are less likely to qualify for mortgages and are more likely to rely on credit card borrowing. Banks' return on equity is negatively related to the proportion of real estate loans and commercial loans, while positively related to the proportion of consumer loans. This result is in part expected and in part surprising. We expect that real estate loans have lower returns since they carry less risk; while consumer loans, especially credit card loans, are a higher risk/return loan category. The negative relationship between bank ROE and the proportion of the commercial loan portfolio was unexpected. Commercial loans tend to have higher returns since they are higher risk loans, thus we expected their proportions to be positively related to bank

ROEs. We also included as an independent variable, *post94*, a dummy variable that accounts for the beginning of interstate branching. The results indicate that legalization of interstate branching is highly positively related to the proportion of real estate loans and negatively related to the proportion of commercial loans. This is likely due to the expansion of mortgage securitization post 1994 and to the development of the commercial paper markets in the later part of the 1990s. These phenomena are likely captured by the *post94* dummy.

CONCLUSION

In general, banks offer and consumers demand real estate, consumer, and commercial loans. Demand and/or supply may be affected by frictions in the market. One source of such market friction may be the policies of federal, state, and local governments. This paper focuses on the relationship between market frictions, as measured by the EFNA on the state and federal level, as it relates to the structure banks' loan portfolios. This research is important because it indicates that banks' balance sheets are impacted by local, state, and federal government intervention or interference in business activities, and is particularly reflected in the structure of banks' loan portfolios. The results of this paper are especially pertinent as legislators design policies to stimulate economic growth.

Through our estimates, a complicated picture emerges of the interplay between loan supply, loan demand, and state and federal frictions in markets. Overall, banks' loan portfolios are more sensitive to state-level market frictions than to federal level frictions. If our "axioms of the economy" are more correct than they are incorrect, then unlocking credit to small and new ventures requires state-level action; specifically avoiding creating inadvertent loan market frictions through state expenditure, tax, and employment policies.

Decomposing the EFNA by its sub-indices and by level of government reveals more complicated relationships between policy-influenced market frictions and the market for bank loans. The separate impacts of spending, transfers, taxes, and government employment, etc.—at the state/local governments-only and the Federal government-only—have multiple, overlapping effects on the composition of a state's banks' loan portfolios. Sometimes the effects of different policy-related market frictions counteract each other; other times the effects reinforce each other. The primary point of this exploratory research is policy-related market frictions have complicated, but significant impacts on the markets for bank loans. It is very important to note that these market frictions do not arise from government's deliberate attempts to regulate the bank loan market. Rather, these frictions arise as the unintended consequence of other types of government policy. If bank finance of small and new businesses is necessary for economic growth, our results indicate that state governments should at least consider the possible unintended consequences of their policies on the market for bank loans.

REFERENCES

Ashby, N. J. (2007). Economic freedom and migration flows between U.S. states. *Southern Economic Journal*, 73, 677-697.

Ashby, N. J. & Sobel, R. S. (2008). Income inequality and economic freedom in the U.S. states. *Public Choice*, 134, 329-346.

Berger, A. N., Saunders, A., Scalise, J. M., Udell, G. F. (1997). The effects of bank mergers and acquisitions on small business lending, *Proceedings, Federal Reserve Bank of Chicago*, May, 241-255.

Bezman, T. L. & Depken, C. A. (2006). Influences on software piracy: Evidence from the various United States. *Economics Letters*, 90, 356-361.

Beatty, A. L. & Gron A. (2001) Capital, portfolio, and growth: bank behavior under risk-based capital guidelines. *Journal of Financial Services Research,* 20(1), 5-31.

Campbell, N. D. & Rogers, T. M. (2007). Economic Freedom and Net Business Formation. *Cato Journal*, 27 (1): 23-36.

Campbell, N. D., Jauregui, A. & Heriot, K. C. (2008). Housing prices and economic freedom. *The Journal of Private Enterprise*, 28 (2), 1-18.
Campbell, N. D., Heriot, K. C. & Rogers, T. M. (2007-2008). The economic freedom index as a determinant of firm births and firm deaths. *Southwest Business & Economics Journal*, 16, 37-51.
Clark, J. R., & Pearson, D. (2007). Economic freedom, entrepreneurship, migration, and economic growth. *The Clarion Business and Economic Review*, 6, 10-23.
Demsetz R. S. & Strahan, P. E. (1997). Diversification, size and risk at bank holding companies. *Journal of Money Credit and Banking*, 29 (3), 300-313.
Friedman, M. (1962). Capitalism and Freedom, *The University of Chicago Press*.
Gohmann, S. F., Hobbs, B. K. & McCrickard, M. (2008). Economic freedom and service industry growth in the United States. *Entrepreneurship Theory and Practice*, 32 (5), 855-874.
Hall, J. C. & Sobel, R. S. (2008). Institutions, entrepreneurship, and regional differences in economic growth. *Southern Journal of Entrepreneurship*, 1, 70-96.
Haubrich, J. G. & Wachtel, P. (1993). Capital requirements and shifts in commercial bank portfolios. *Economic Review, Federal Reserve Bank of Cleveland*, 2-15.
Hayden, E., Porath, D., Westernhagen, N. V. (2007). Does diversification improve the performance of german banks? Evidence from individual bank loan portfolios. *Journal of Financial Services Research*, 32, 123-140.
Ivashina, V. & Scharftsein, D. (2009). Bank lending during the financial crisis of 2008. *Journal of Financial Economics,* (97) 319-338.
Karabegovic, A., Samida, D., Schlegel, C. M. & McMahon, F. (2003). North American economic freedom: An index of 10 Canadian provinces and 50 U.S. states. *European Journal of Political Economy, 19*(3), 431-452.
Karabegovic, Amela, Fred McMahon, and Glenn Mitchell. 2005. *Economic Freedom of North America 2005 Annual Report.* The Fraser Institute.
Kreft, S. F. & Sobel, R. S. (2005). Public policy, entrepreneurship, and economic freedom. *Cato Journal*, 25, 595-616.
Keeton, W. R. (1996). Do Bank Mergers Reduce Lending to Businesses and Farmers? New Evidence from Tenth District States. *Federal Reserve Bank of Kansas City*, 63-75.
Lawson, R. A. & Roychoudhury, S. (2008). Economic freedom and equity prices among U.S. states. *The Credit and Financial Management Review*, 14, 25-35.
Levine, R. (1997) Financial Development and Economic Growth. *Journal of Economic Literature*, 35(2), 688-726.
Mester, L. (1997) What's the point of credit scoring? Federal Reserve Bank of Philadelphia's *Business Review*, Sept/Oct, 3-16.
Micco, A. & Panizza, U. (2006). Bank ownership and lending behavior. *Central Bank of Chile Working Papers*.
Mitchell, K., & Pearce, D. K. (2011). Lending technologies, lending specialization, and minority access to small-business loans. *Small Business Economics, 37*(3), 277-304.
Peek, J. & Rosengren, E. S. (1998). The evolution of bank lending to small business. *New England Economic Review*, March/April 1998.
Sapienza, P. (2004). The effects of government ownership on bank lending. *Journal of Financial Economics*, 72, 357-384.
Sobel, R. S. (2008). Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing*. 23, 641-655.
Sobel, R. S., Clark, J. R., & Lee, D. R. (2007). Freedom, barriers to entry, entrepreneurship, and economic progress. *Review of Austrian Economics*, 20, 221-236.
Stocker, M. L. (2005). Equity returns and economic freedom. *Cato Journal*, 25, 583-594.
Strahan, P. E., & Weston, J. (1996). Small business lending and bank consolidation: Is there cause for concern? *Current Issues in Economics and Finance, Federal Reserve Bank of New York*, 2 (3), 1-6.